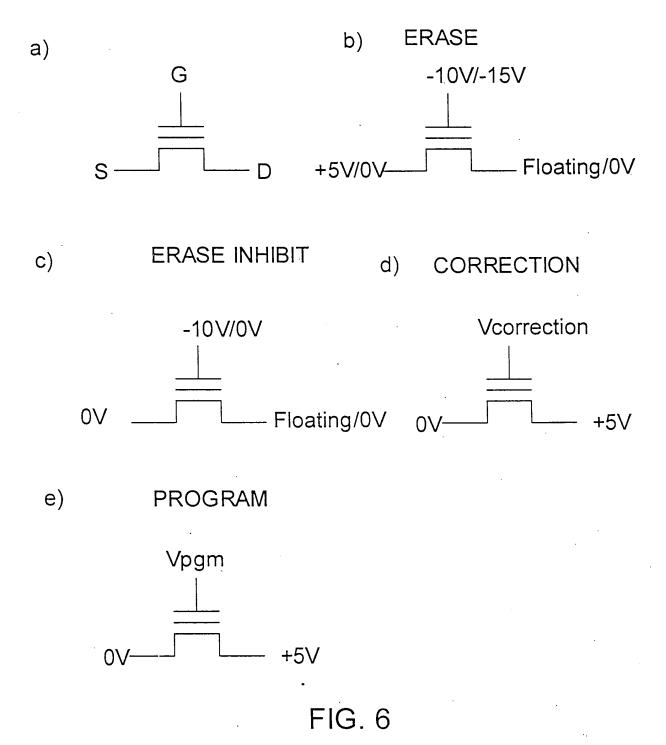


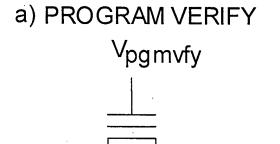
- 10- control gate
- 11- floating gate
- 22- shallow junction
- 13- shallow junction
- 44- p+ implant
- 14- ONO
- 15-tunnel oxide
- 38-channel erase
- 49-CHE program
- 40- p-well
- 41-deep n-well
- 16- p-substrate

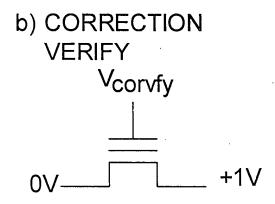
FIG.5 (Prior Art)

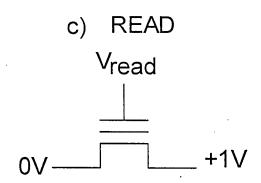
ETOX NOR Cell on a P-substrate



ETOX NOR Cell on a P-substrate







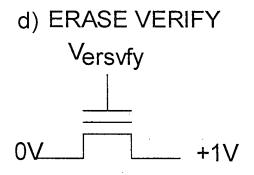


FIG. 7

ETOX NOR Cell on a P-substrate

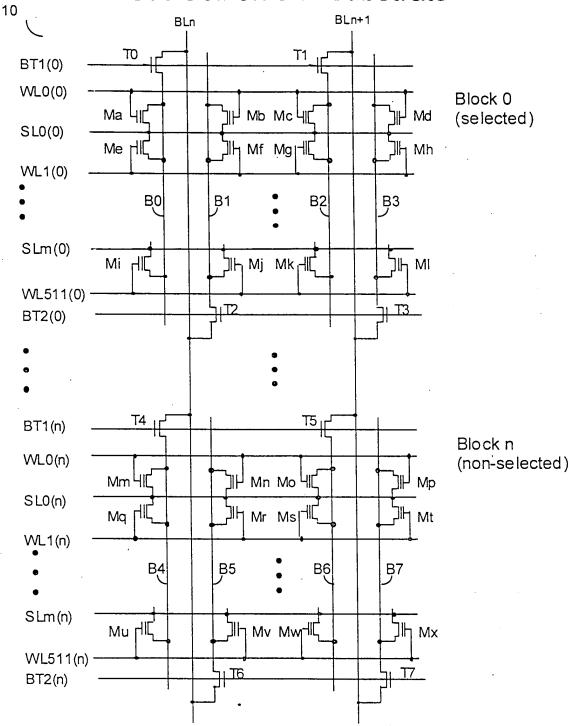


FIG.8

Block Erase Operations

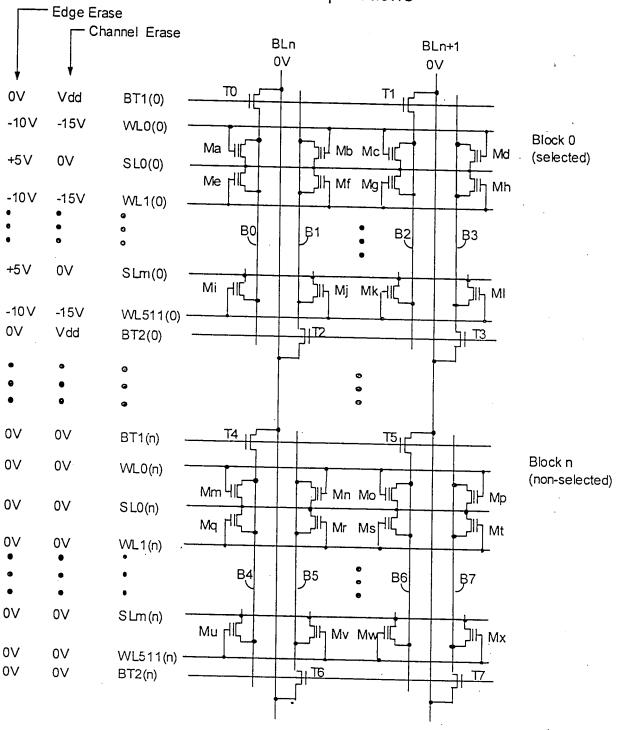


FIG. 9

Block Erase Verify

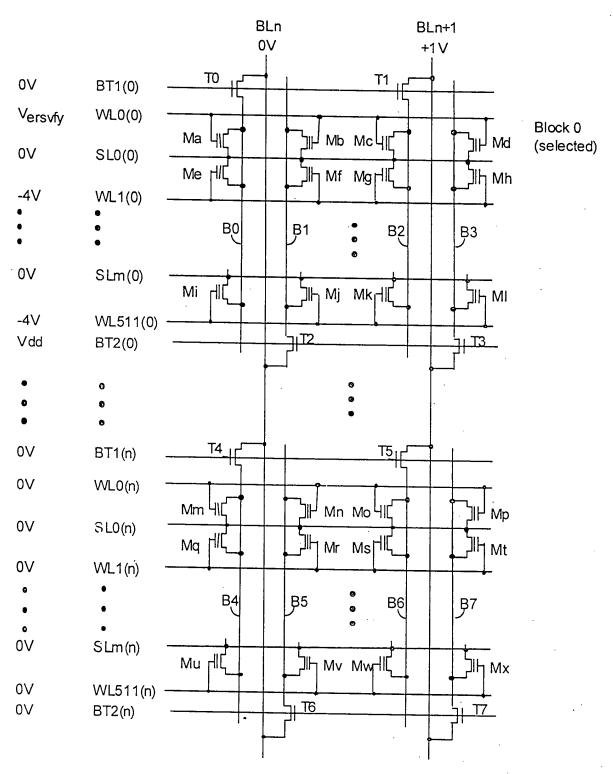


FIG.10

Erase Inhibit

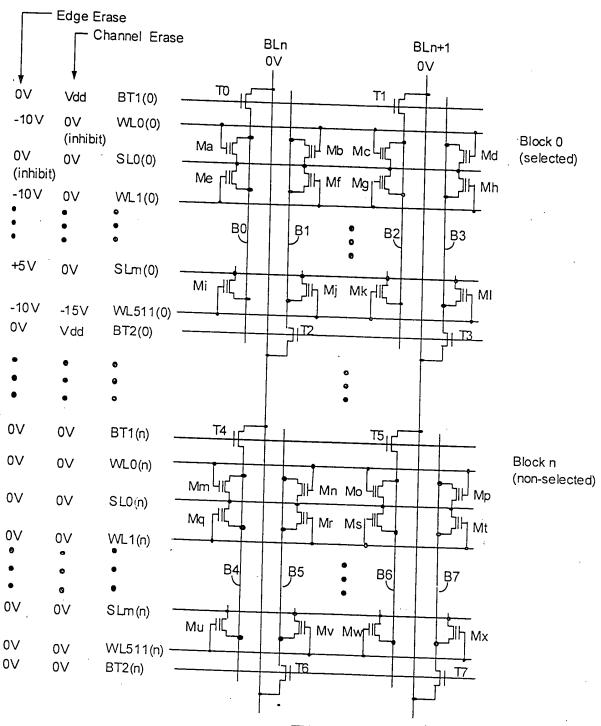
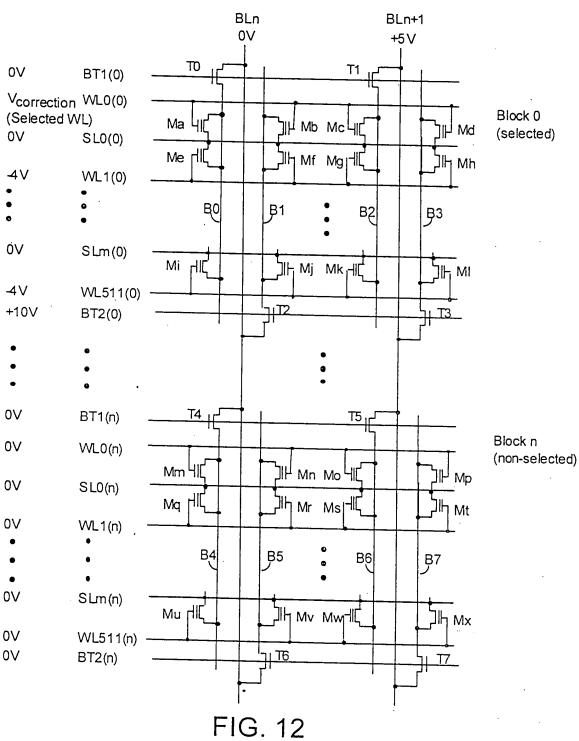


FIG. 11

Correction Operations



Correction Verify Operations

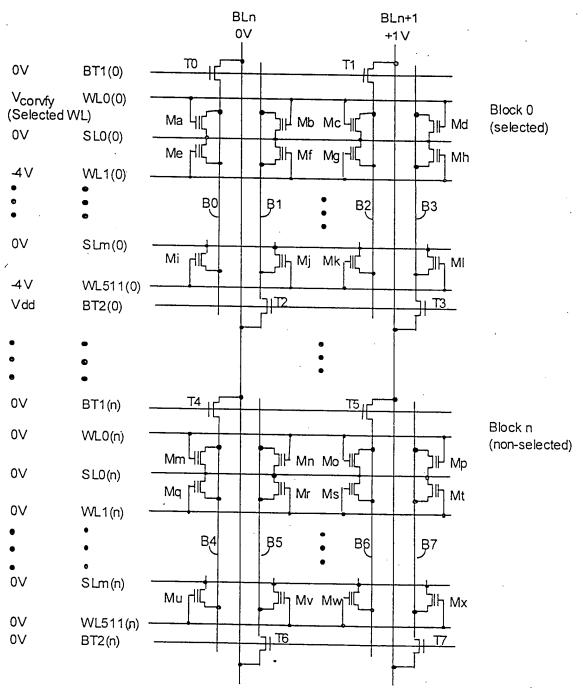


FIG. 13

Program Operations

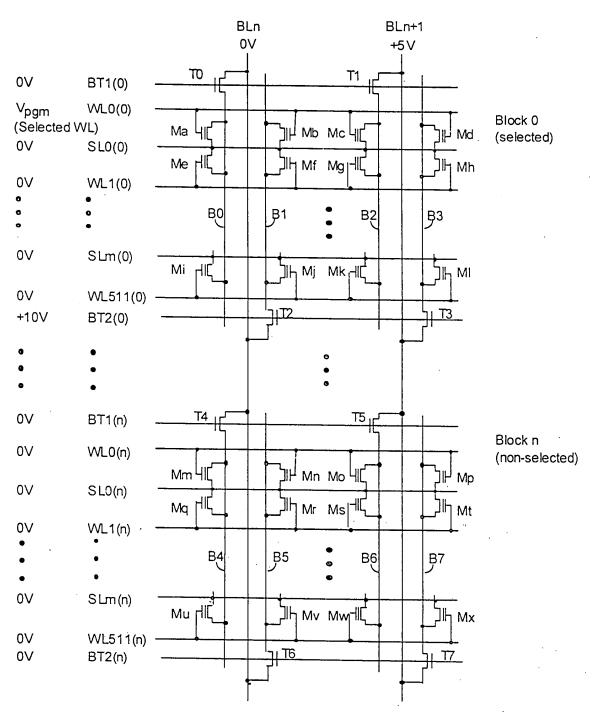


FIG. 14

Program Verify Operations

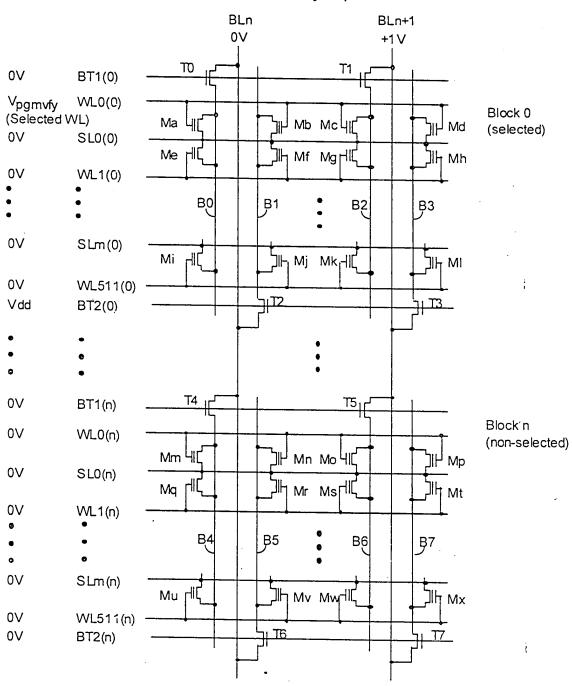
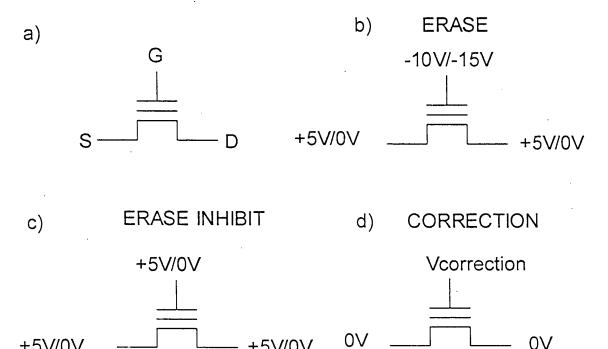


FIG. 15

Cell on a P-substrate for this invention



0V



+5V/0V

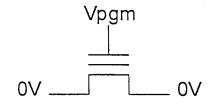
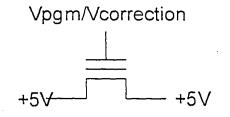


FIG. 16

Cell on a P-substrate for this invention

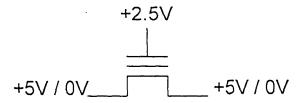
a) PROGRAM/CORRECTION INHIBIT

(In same WL, in selected Block)

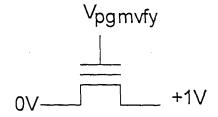


b) PROGRAM/CORRECTION INHIBIT

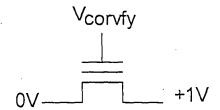
(In different WL, in selected Block)

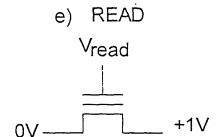


c) PROGRAM VERIFY



d) CORRECTION VERIFY





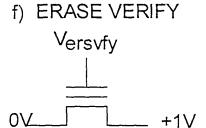


FIG. 17

AND Array on a P-substrate

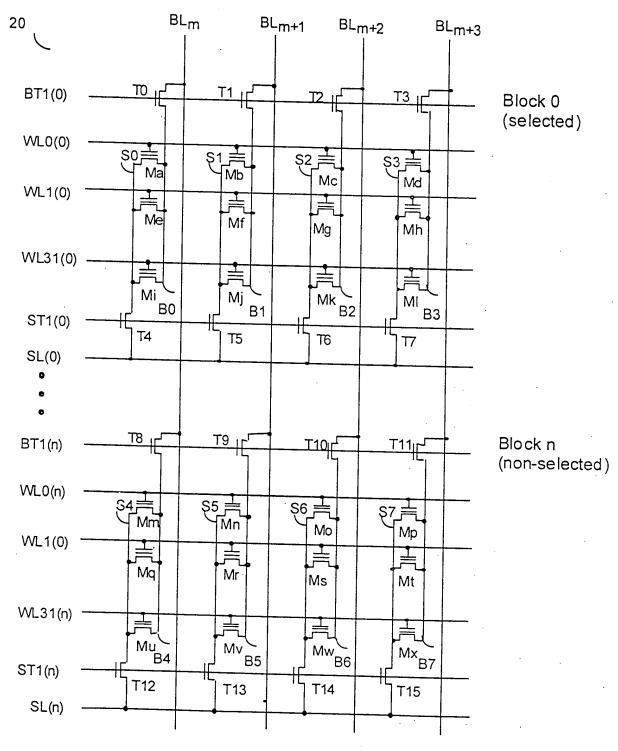
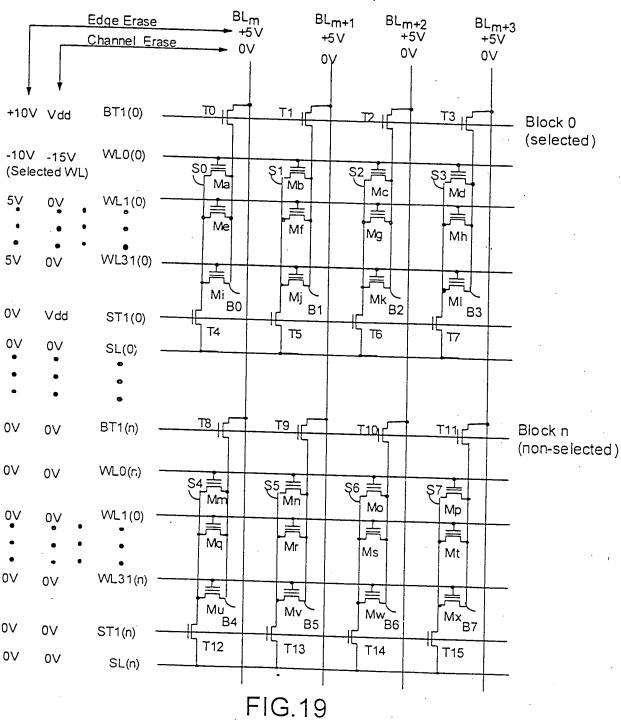


FIG. 18

Random Page Erase Operation



Random Page Erase Verify Operation

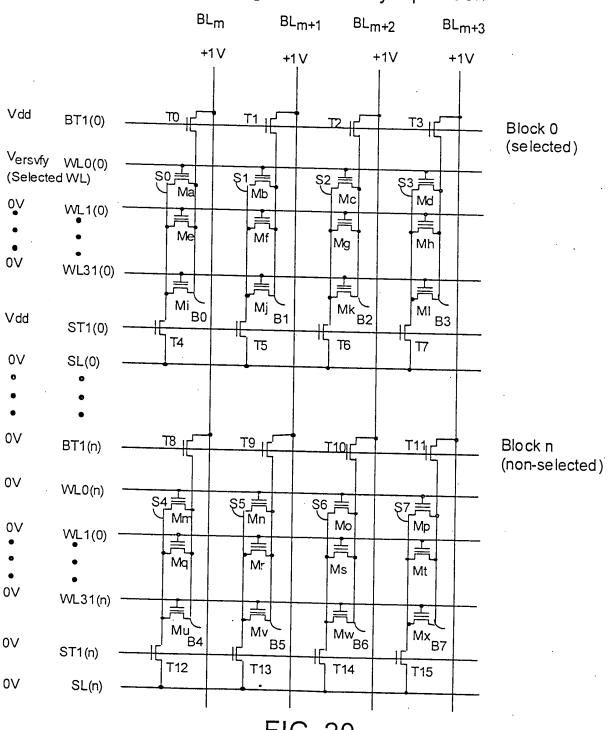


FIG. 20

Block Erase Operations

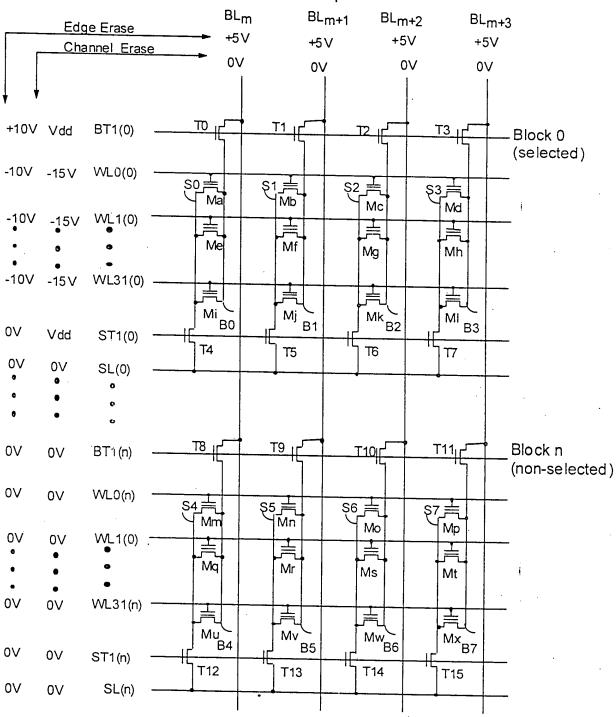


FIG.21

Block Erase Verify

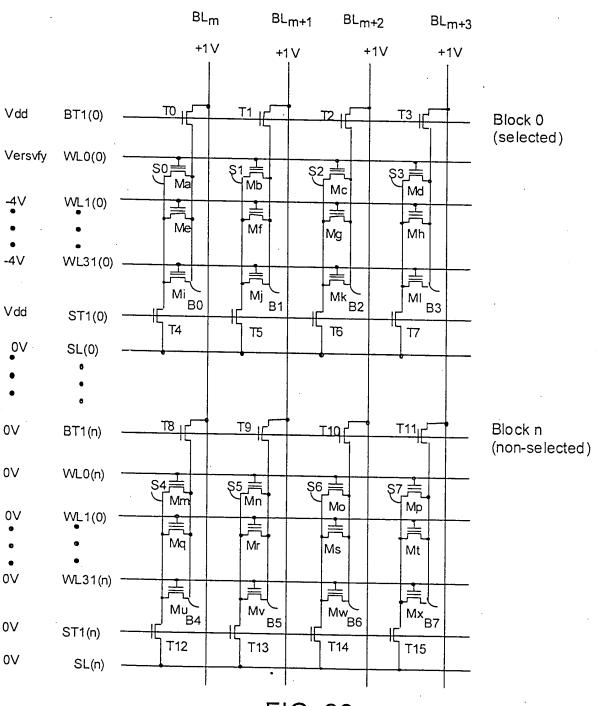


FIG. 22

Block Erase Inhibit

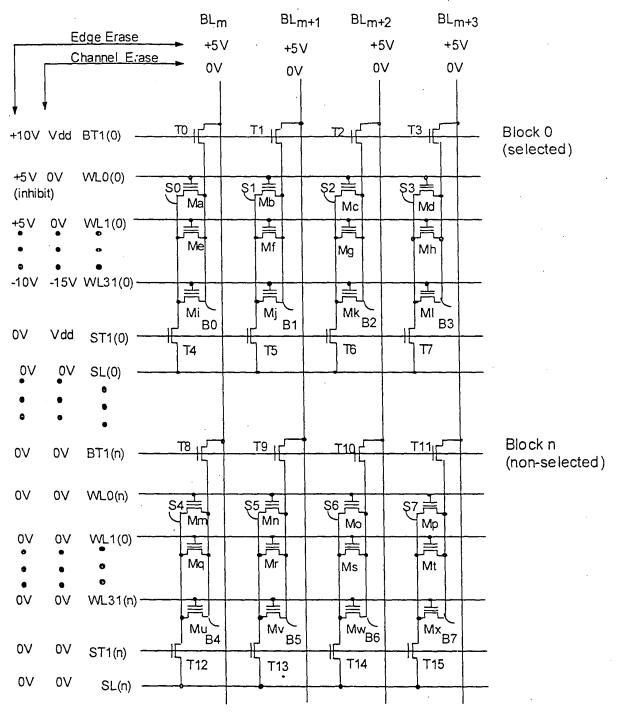


FIG. 23

Correction Operation

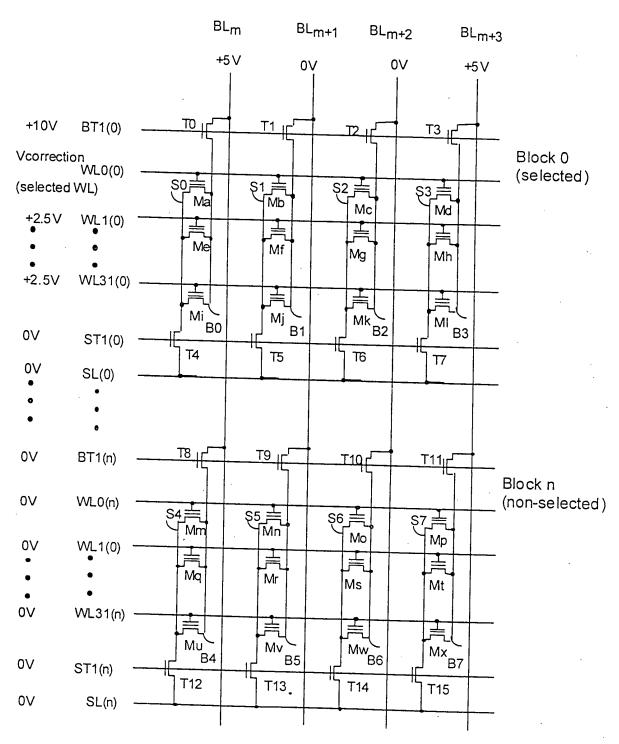


FIG. 24

Correction Verify

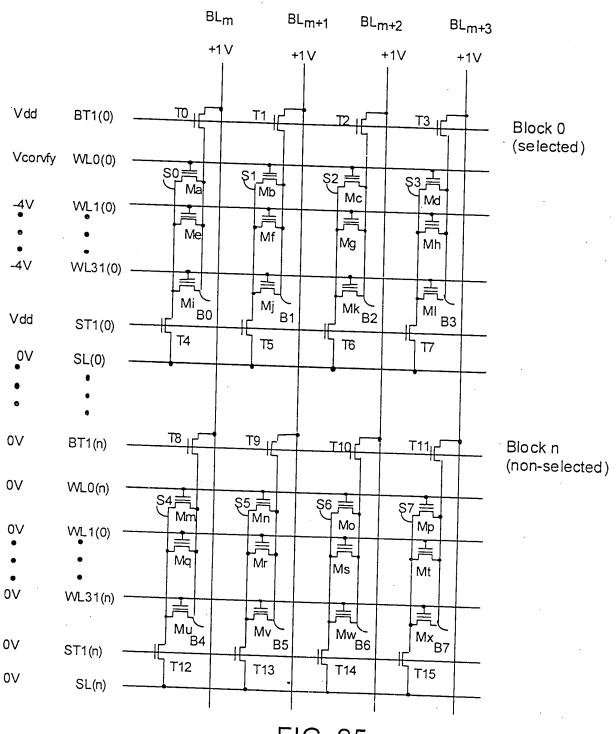


FIG. 25

Random Page Program Operation

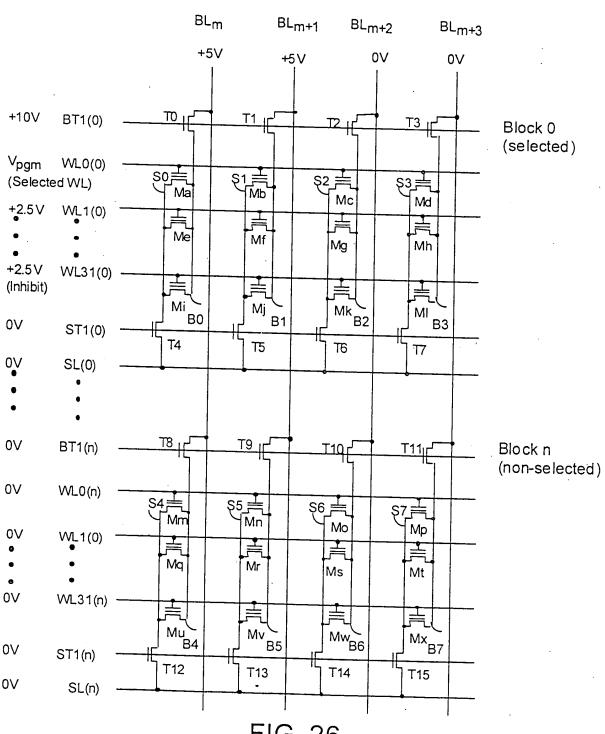


FIG. 26

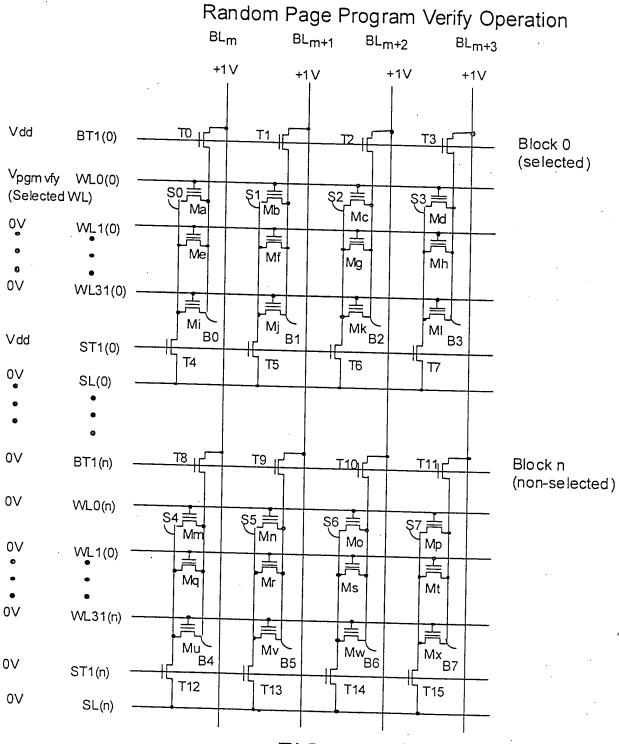
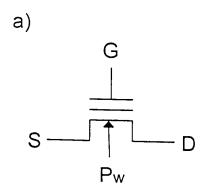
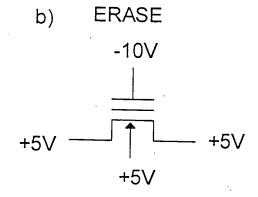


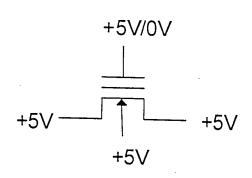
FIG. 27

ETOX NOR cell on a P-well

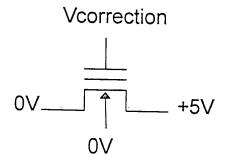




c) ERASE INHIBIT



d) CORRECTION



e) PROGRAM

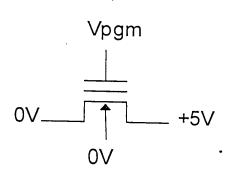
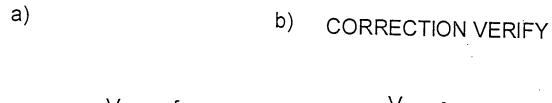
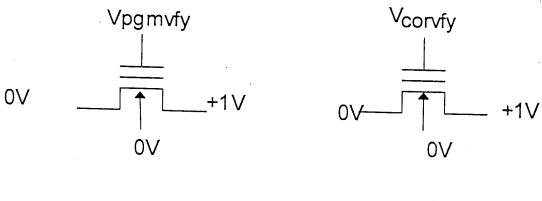


FIG. 28

ETOX NOR cell on a P-well





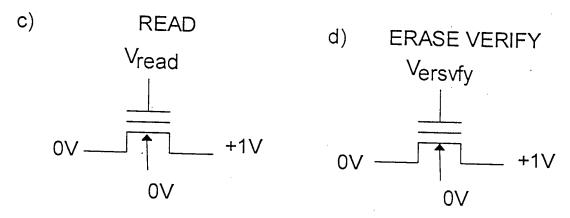
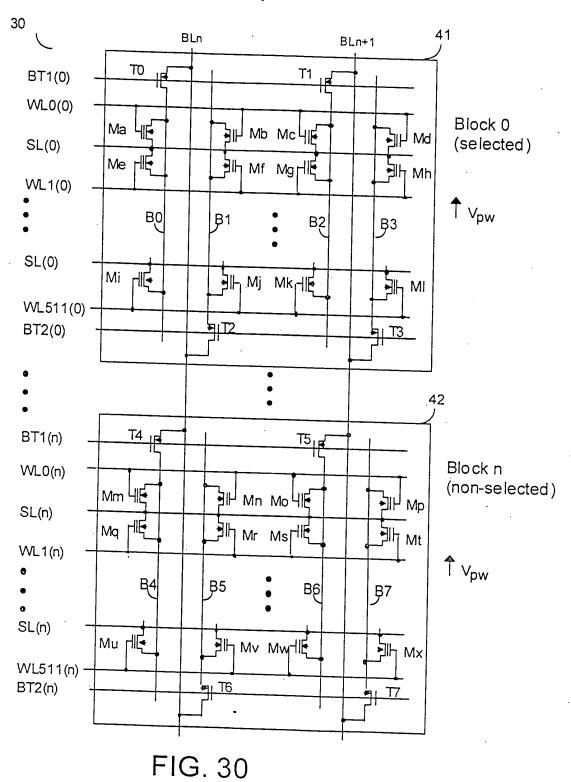


FIG. 29

ETOX NOR Array on a Pwell



Block Erase Operations

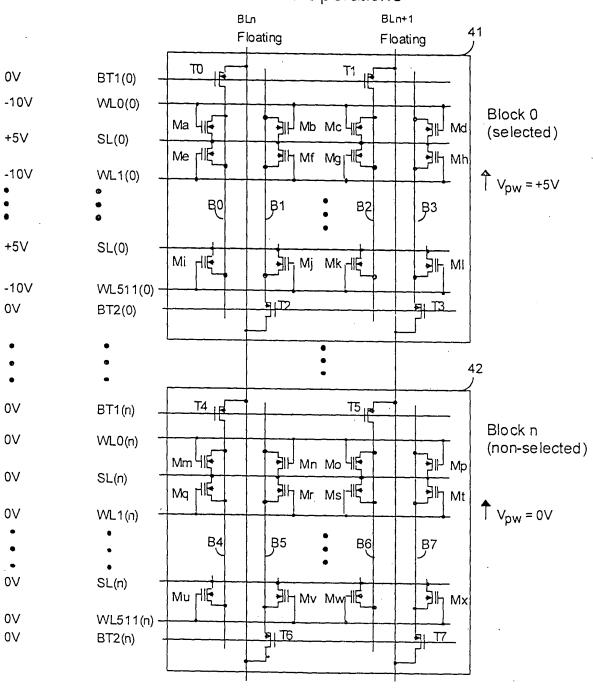


FIG. 31

Block Erase Verify BLn BLn+1 41 0V +1 V T1 0V BT1(0) Versvfy WL0(0) Block 0 Ма ЧЕ 劃h WP MC 네틴 FIM Ma (selected) 0V SL(0) Me HE AL WE WATE ∌lh Mh -4V WL1(0) $T_{\text{pw}} = 0V$ B₀ В1 B2 ŖЗ 0V SL(0) Mi HE AL MI MKHE WL511(0) -4V Vdd BT2(0) 42 0ν T5 15 BT1(n) Block n 0∨ WL0(n) (non-selected) TH OM OM HE Mm 41E aM H[€ 0V SL(n) Ma HE JH Mr MsHE ∮lh Mt \uparrow $V_{pw} = 0 \lor$ 0V WL1(n) B4 Ŗ5 B6 Ŗ7 0V SL(n) Mu HE ₽lh Mx AND MAN AM LIE 0V WL511(n) 0V BT2(n) 77 IF

FIG. 32

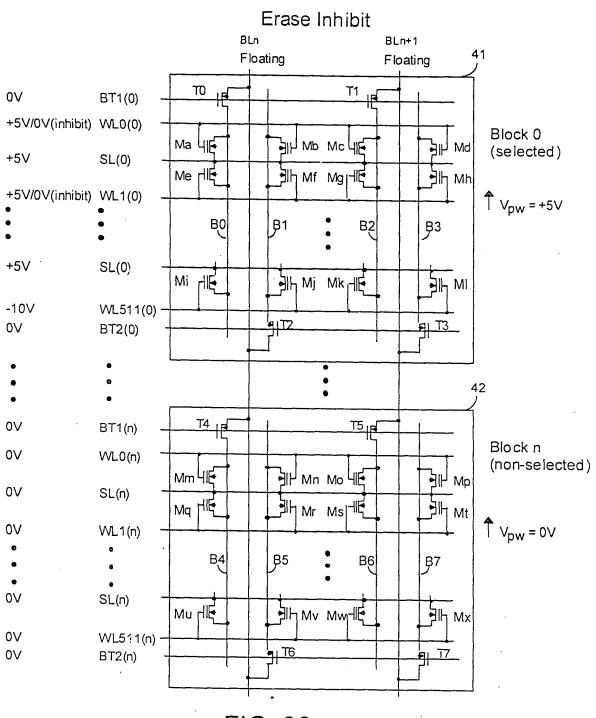


FIG. 33

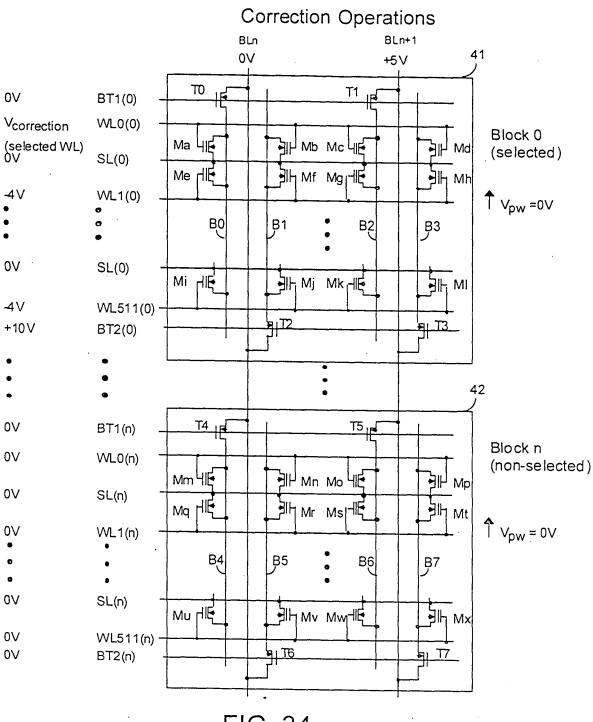
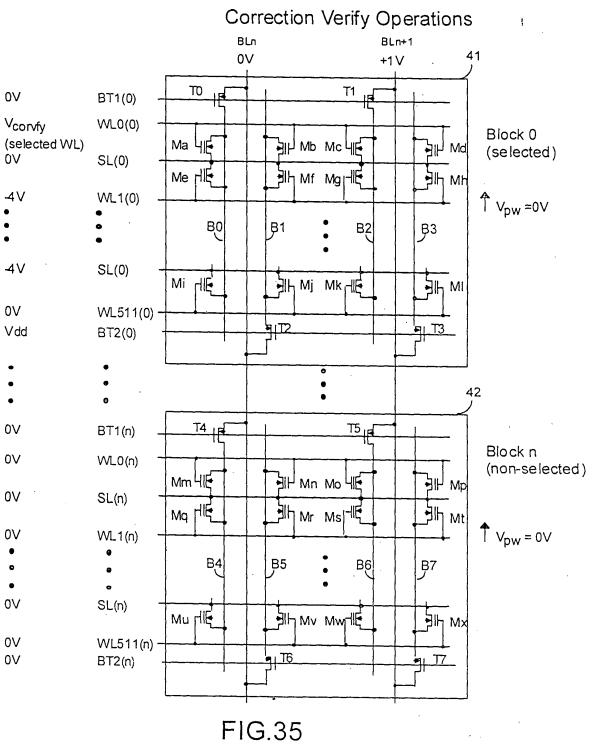


FIG. 34



Program Operations

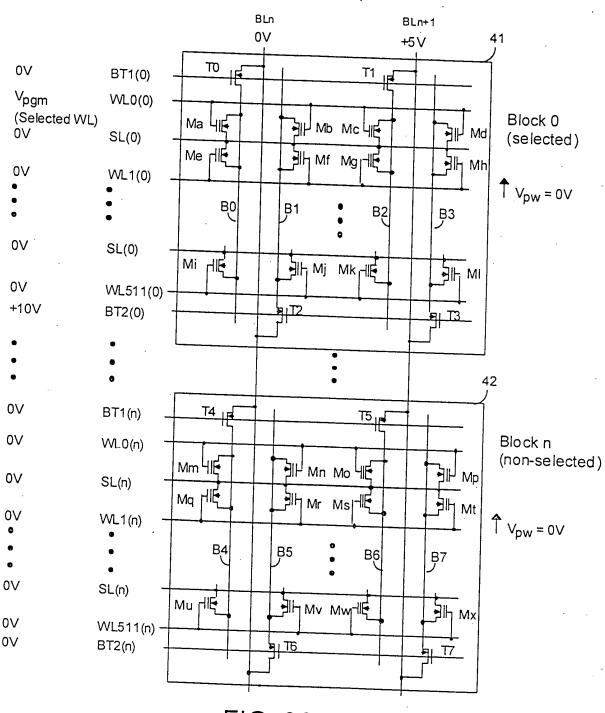


FIG. 36

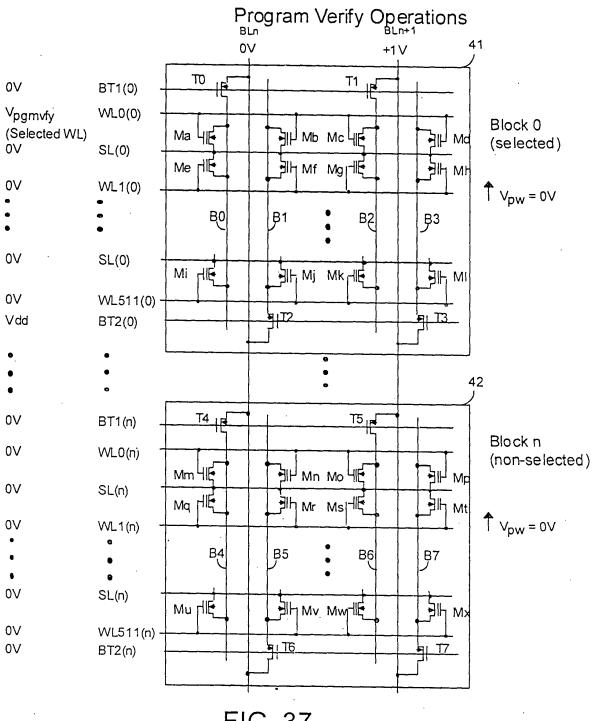


FIG. 37

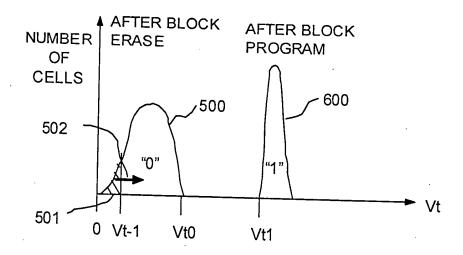


FIG.38a (Prior Art)

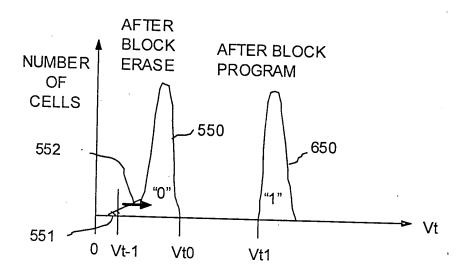


FIG.38b

BLOCK ERASE OPERATION START SELECTONE BLOCK **BLOCK ERASE** 52~ (Vt DECREASED) 54 53 VERIFICATION YES SUB_BLOCK FOR SUB_BLOCK CELL ERASE INHIBIT $Vt \le Vt0?$ NO 55 NO LAST SUB_BLOCK? YES 56 ALL SUB_BLOCK ERASE NO INHIBIT? YES

FIG. 39

END

CORRECTION OPERATION

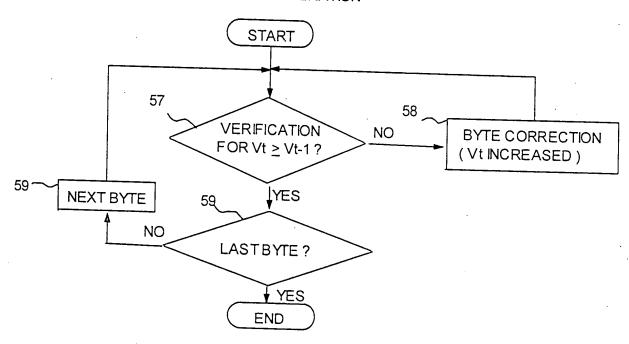


FIG. 40

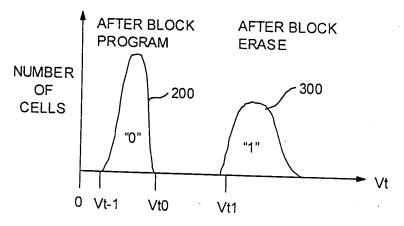


FIG.41a (Prior Art)

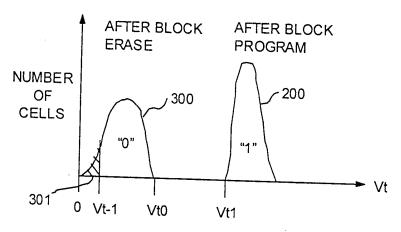


FIG.41b (Prior Art)

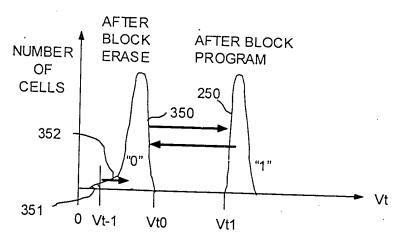
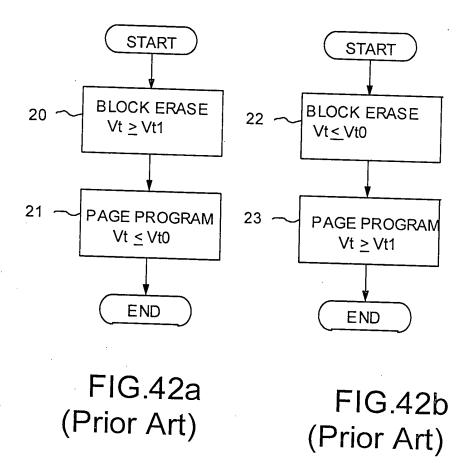


FIG.41c



BLOCK ERASE OPERATION

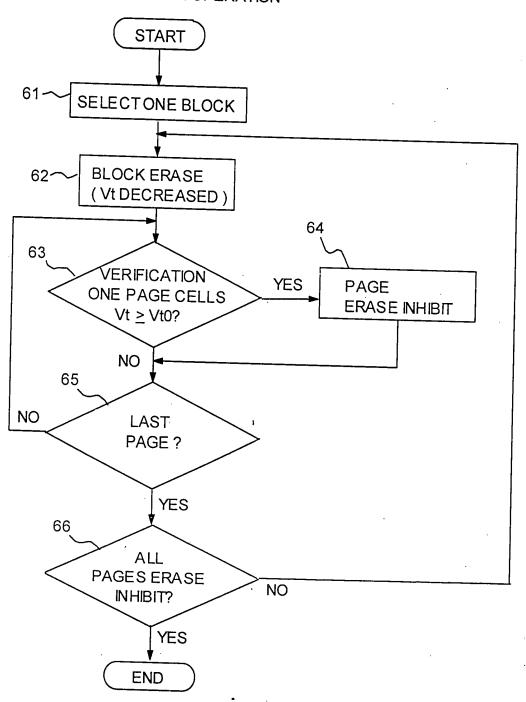


FIG. 43

CORRECTION OPERATION

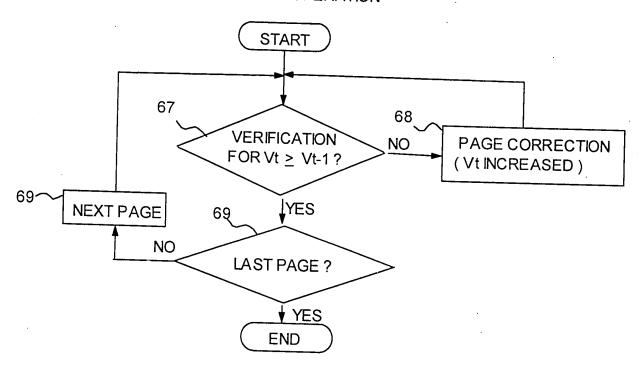


FIG. 44